1. The average velocity of an object during 6.0 seconds is 2 meters per second. What is the total distance traveled by the object?
   (1) 1/3 m (3) 3 m
   (2) 12 m (4) 4 m

2. A car travels 20. meters east in 1.0 second. The displacement of the car at the end of this 1.0-second interval is
   (1) 20. m (3) 20. m east
   (2) 20. m/s (4) 20. m/s east

3. The average speed of a plane was 600 kilometers per hour. How long did it take the plane to travel 120 kilometers?
   (1) 0.2 hour (3) 0.7 hour
   (2) 0.5 hour (4) 5 hours

4. A group of bike riders took a 4.0-hour trip. During the first 3.0 hours, they traveled a total of 50. kilometers, but during the last hour they traveled only 10. kilometers. What was the group's average speed for the entire trip?
   (1) 15 km/hr (3) 40. km/hr
   (2) 30. km/hr (4) 60. km/hr

5. What is the average velocity of a car that travels 30. kilometers due west in 0.50 hour?
   (1) 15 km/hr (3) 15 km/hr west
   (2) 60. km/hr (4) 60. km/hr west

6. As a cart travels around a horizontal circular track, the cart *must* undergo a change in
   (1) velocity (3) speed
   (2) inertia (4) weight

7. A baseball pitcher throws a fastball at 42 meters per second. If the batter is 18 meters from the pitcher, approximately how much time does it take for the ball to reach the batter?
   (1) 1.9 s (3) 0.86 s
   (2) 2.3 s (4) 0.43 s

8. A car moving at a speed of 8.0 meters per second enters a highway and accelerates at 3.0 meters per second^2. How fast will the car be moving after it has accelerated for 56 meters?
   (1) 24 m/s (3) 18 m/s
   (2) 20. m/s (4) 4.0 m/s

9. Base your answer on the information below.

   A 1,000-kilogram car traveling with a velocity of +20. meters per second decelerates uniformly at -5.0 meters per second^2 until it comes to rest.

   What is the total distance the car travels as it decelerates to rest?
   (1) 10. m (3) 40. m
   (2) 20. m (4) 80. m

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10. A car having an initial speed of 16 meters per second is uniformly brought to rest in 4.0 seconds. How far does the car travel during this 4.0-second interval?
    (1) 32 m (3) 96 m
    (2) 82 m (4) 4.0 m

11. A boat initially traveling at 10. meters per second accelerates uniformly at the rate of 5.0 meters per second^2 for 10. seconds. How far does the boat travel during this time?
    (1) 50. m (3) 350 m
    (2) 250 m (4) 500 m

12. A cart moving across a level surface accelerates uniformly at 1.0 meter per second^2 for 2.0 seconds. What additional information is required to determine the distance traveled by the cart during this 2.0-second interval?
    (1) coefficient of friction between the cart and the surface
    (2) mass of the cart
    (3) net force acting on the cart 4 initial velocity of the cart
    (4) initial velocity of the cart

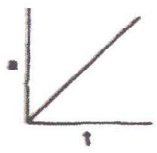
13. Starting from rest, an object rolls freely down an incline that is 10 meters long in 2 seconds. The acceleration of the object is approximately
    (1) 5 m/sec (3) 10 m/sec
    (2) 5 m/sec^2 (4) 10 m/sec^2

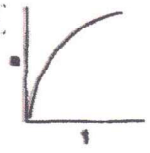
14. A car is accelerated at 4.0 m/s^2 from rest. The car will reach a speed of 28 meters per second at the end of
    (1) 3.5 sec. (3) 14 sec.
    (2) 7.0 sec. (4) 24 sec.

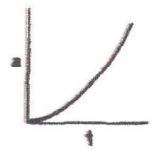
15. Base your answer on the information below:

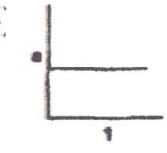
    A 10.-kilogram object, starting from rest, slides down a frictionless incline with a constant acceleration of 2.0 m/sec^2 for four seconds.

    Which graph below best represents the relationship between acceleration (a) and time (t) for the object?

    (1) 

    (3) 

    (2) 

    (4) 

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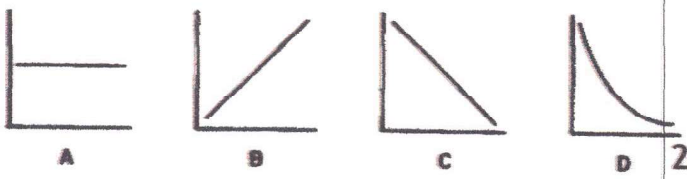
16. Base your answer on the graphs below which represent various phenomena in physics. [Note: A graph may be used more than once.]



Which graph best represents the relationship between velocity and time for an object thrown vertically upward near the surface of the Earth?

(1) *A* (3) *C*

(2) *B* (4) *D*

17. An object falls freely from rest near the surface of the Earth. What is the speed of the object when it has fallen 4.9 meters from its rest position?

(1) 4.9 m/s (3) 24 m/s

(2) 9.8 m/s (4) 96 m/s

18. A rock falls freely from rest near the surface of a planet where the acceleration due to gravity is 4.0 meters per second^2. What is the speed of this rock after it falls 32 meters?

(1) 8.0 m/s (3) 25 m/s

(2) 16 m/s (4) 32 m/s

19. A clam dropped by a sea gull takes 3.0 seconds to hit the ground. What is the sea gull's approximate height above the ground at the time the clam was dropped?

(1) 15 m (3) 45 m

(2) 30. m (4) 90. m

20. In an experiment that measures how fast a student reacts, a meter stick dropped from rest falls 0.20 meter before the student catches it. The reaction time of the student is approximately

(1) 0.10 s (3) 0.30 s

(2) 0.20 s (4) 0.40 s

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